

## TREATMENT IN THE ALLIED MERCHANT NAVIES

The activities of the venereal diseases clinics and the general upgrading of treatment have caused a marked fall in the incidence of ear conditions of syphilitic origin, both in the acquired and congenital forms of the disease. Because of the improved treatment of the prospective parent there should be fewer and fewer infected children born. If we keep in mind that by far the most common ear condition in congenital syphilis occurs after the age of 8 or 10 years, and if we insist accordingly on continued treatment and after-care up to and beyond that age, we ought to be able to prevent a large proportion of the deafness which otherwise might occur.

There is one other point to which I should like to refer again. In the course of going into the history of deaf-mutes for certification as to their eligibility for the School for the Deaf, I have been struck by the large number of cases in which a history of severe but ill-defined illness at the age of 1 year or 18 months is elicited. Often it is reported that the doctor had said that he "was afraid of meningitis", or something else may have been diagnosed; but the mother remembers that the patient was unconscious for some days. If it were generally kept in mind that a syphilitic basal meningitis is apt to behave just like this—without a frank exhibition of all the cardinal signs of the acute condition—then the practitioner would resort to a blood examination and have the proper treatment instituted in time to avert the disaster to the nerve of hearing.

I wish to acknowledge my indebtedness to the Honorary Editors of the *Proceedings of the Royal Society of Medicine* for permission to quote from their published report of the meeting of the Section of Otolaryngology.

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## TREATMENT OF VENEREAL DISEASES IN THE ALLIED MERCHANT NAVIES

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The centre in which the treatment described below was given is the Liverpool Corporation Seamen's Dispensary, a small building erected in 1923 for the purpose which it serves.

It is within a hundred yards of the three main Seamen's Homes and the Merchant Navy Reserve Pool Offices. It is an *ad hoc* venereal diseases centre for out-patients, with a small laboratory in which microscopical slide preparations for the diagnosis of gonorrhoea and syphilis can be examined immediately. Serological tests are performed thrice weekly at the City Laboratories, and thus rapid diagnosis is made possible. The great majority of the patients are seafarers, and a close liaison between this centre and the medical superintendents of the shipping companies, the medical officers of the Shipping Federation and the various consulates of maritime nations, has always existed within the limits of professional confidence and of the Venereal Diseases Regulations of 1916. Certificates stating probable duration of absence from sea service, and of fitness to serve at sea for a stated period of 3 or 6 months, are given to the patient in person, and he is at liberty to utilize or destroy the certificate as he wishes. Of recent years, the Allied Merchant Navies of Belgium, France, Holland, Norway and Poland have set up

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medical establishments in the city, and these have eased the volume of work which, otherwise, would have had to be undertaken by the health services of the local authority. The Seamen's Dispensary has provided a consultant centre for venereal diseases for all these Allied establishments.

For the past 21 years, early syphilis has been treated in a manner which has allowed seamen to spend a minimum amount of time ashore, and to complete

TABLE 1—CASES OF VENEREAL DISEASE TREATED AT THE SEAMEN'S DISPENSARY, LIVERPOOL, 1943 and 1944

Description	1943	1944	Total
<b>Syphilis :</b>			
Sero-negative primary ... ..	116	93	209
Sero-positive primary ... ..	124	134	258
Secondary ... ..	113	79	192
Latent and late ... ..	251	215	466
Treated elsewhere ... ..	624	569	1193
<b>Total syphilis ... ..</b>	<b>1,228</b>	<b>1,090</b>	<b>2,318</b>
<b>Chancroid :</b>			
Not treated previously ... ..	159	106	265
Treated previously elsewhere ... ..	8	4	12
<b>Gonorrhoea :</b>			
Not treated previously ... ..	1,581	1,497	3,078
Treated previously elsewhere ... ..	271	121	392
<b>Non-Venereal Diseases ... ..</b>	<b>1,942</b>	<b>2,109</b>	<b>4,051</b>
<b>Total : all cases ... ..</b>	<b>5,189</b>	<b>4,927</b>	<b>10,116</b>

round voyages to the Far East without serological or clinical relapse. This course calls for twice-weekly injections of neoarsphenamine and bismuth, with an interval between injections of not more than 4 days. A course of 4.5 grammes of neoarsphenamine and from 1.2 to 2.4 grammes of bismuth has been given in 39 days, and this course has been repeated on 2 further occasions at intervals of from 3 to 6 months. Thus the patient has been enabled to go to sea for 6 months between courses, and could receive all his treatment in Liverpool. The scheme has proved very efficient and has satisfied both the patient and the medical superintendents of the companies concerned.

Tables 1 and 2, which consist of material excerpted from the Annual Returns for 1943 and 1944, give a general survey of the work done.

### Scheme of treatment for early cases

In November 1942, a conference of medical representatives of the Allied Nations was held at the Ministry of Health, with Colonel Harrison presiding, and a scheme for the treatment of seamen was agreed upon ; it was circulated, on 24th March 1943, to Medical Officers of Health of County and County Borough Councils, to the Common Council of the City of London and to Port Health Authorities. A full report of the scheme was published in the *Journal* in June 1943. Briefly stated, the treatment of early cases of gonorrhoea and syphilis has been as follows.

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**Gonorrhoea.**—The basis of treatment was the administration of sulphathiazole or of sulphadiazine in efficient doses, say 30 grammes in 5 days, and the ingestion of copious fluids. At clinics lavage was to be given during this treatment and all cases were to be tested for cure. In order to exclude coincident infection with syphilis, a blood Wassermann was to be taken 3 months after the appearance of the gonorrhoeal infection.

**Syphilis.**—After diagnosis had been confirmed by laboratory methods, in ships carrying surgeons capable of giving the treatment, or at shore clinics, men engaged on deep-sea service were to be treated twice weekly for 39 days. The arsenical compound was to be given on 12 occasions with an interval of not more than 4 days between injections and bismuth was to be given concurrently. Neoarsphenamine, arsphenamine diglucoside (intravenously) or sulpharsphenamine (intramuscularly) in doses of 0.45 gramme, and bismuth (intramuscularly) in doses of 0.15 gramme, if tolerated by the individual patient, were the doses recommended. A rest period up to 6 months could then be given before beginning the second course of treatment which, provided that the blood Wassermann was negative, consisted of twice-weekly treatment as above for a period of 29 days. Thereafter another rest interval of 6 months preceded the third and last course, which was the same as the second. Blood Wassermann tests were to continue for 2 years at intervals of 3-6 months after the completion of the last course.

TABLE 2—NATIONALITIES OF PATIENTS COMPARED WITH LIVERPOOL CITIZENS

Place of origin	Year	Syphilis	Chancroid	Gonorrhoea	Total
West Africa ... ..	1943	37	6	94	137
	1944	44	6	116	166
China ... ..	1943	142	19	264	425
	1944	134	33	406	573
France and French Colonies ... ..	1943	46	6	57	109
	1944	38	1	65	104
India ... ..	1943	12	4	14	30
	1944	20	7	25	52
West Indies ... ..	1943	10	2	43	55
	1944	10	1	56	67
Liverpool ... ..	1943	159	49	503	711
	1944	61	26	238	325

It was hoped that there would be but few Wassermann-fast cases and it was emphasized that strict regularity of injections was essential if such cases were to be avoided.

It will be noted that this method of treatment is substantially the same as the routine treatment employed at the Seamen's Dispensary, Liverpool, from 1924 onwards; therefore no change in routine practice was necessary at this centre. From these years of experience it was known that the limit of toleration in the average case in which neoarsphenamine is given twice weekly is in the neighbourhood of 4.5 grammes; therefore the vast majority of cases received 10 injections of neoarsphenamine or arsphenamine diglucoside together with 10 injections of 0.16 gramme bismuth in 32 days.

TABLE 3—RESULTS OF TREATMENT OF SYPHILIS AT THE SEAMEN'S DISPENSARY

Type of Syphilis and of Treatment	Compound used	Number of cases	Number and type of courses	Number of cases followed up	Successes	Failures at 6 months	End of course	Successes: Wassermann reaction negative at								At or under 6 months Clin.	Failures Over 6 months Serol.	Over 6 months Serol.
								3 months	6 months	9 months	12 months	15 months	18 months	24 months				
S 1—	Maph.	51	R 89 I 15	50	47	2	9	1	1	3	9	4	10	10	2	Nil	1	Nil
Regular	Stab.	43	R 63 I 9	27	27	Nil	11	5	4	2	2	—	2	1	Nil	Nil	Nil	Nil
S 1+	Maph.	58	R 103 I 15	50	45	1	6	6	2	6	6	3	12	4	Nil	1	Nil	4
Regular	Stab.	51	R 63 I 2	24	21	1	5	9	3	1	3	—	—	—	Nil	1	1	1
S 2	Maph.	43	R 71 I 4	32	28	1	3	1	5	—	3	7	7	2	1	Nil	1	2
Regular	Stab.	50	R 62 I 3	23	22	Nil	5	9	3	4	1	—	—	—	Nil	Nil	1	Nil
Totals	Maph.	152		132	120	4									3	1	2	6
	Stab.	144		74	70	1									Nil	1	2	1
S 1—	Maph.	35	R 11 I 49	32	29	1	5	5	5	3	3	4	2	2	1	Nil	Nil	2
Irregular	Stab.	27	R 28 I 28	7	5	2	2	1	1	1	—	—	—	—	2	Nil	Nil	Nil
S 1+	Maph.	33	R 5 I 47	27	23	3	10	—	1	1	2	1	1	7	2	1	Nil	1
Irregular	Stab.	41	R 2 I 43	17	13	2	6	6	—	—	—	—	—	—	1	1	Nil	2
S 2	Maph.	28	R 9 I 45	26	22	2	7	3	2	—	3	3	3	1	Nil	2	Nil	2
Irregular	Stab.	34	R 3 I 39	18	14	2	6	3	3	1	—	—	—	1	Nil	2	1	1
Totals	Maph.	96		85	74	6									3	3	Nil	5
	Stab.	102		42	32	6									3	3	1	3

R = Regular  
S 1 — = sero-negative primary syphilis

I = irregular  
S 1 + = sero-positive primary syphilis

S 2 = secondary syphilis  
Maph. = mapharside  
Stab. = Stabarsan

Clin. = clinically estimated  
Serol. = serologically estimated

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Men engaged on coastwise shipping, who could be treated at weekly intervals, were to receive 3 courses of 10 injections of the specified arsenicals, each of 0.6 gramme, together with from 0.2 gramme to 0.3 gramme of bismuth at weekly intervals. One month was to elapse between courses and the Wassermann follow-up was to extend over 2 years as in the more intensive course quoted above.

### Experience of the scheme at the Seamen's Dispensary

*Gonorrhoea*.—This is probably the best system that could have been devised, but in many ships a free and easy distribution of sulphonamide tablets existed and this opened the way to a regular "black market". In some parts of the world each tablet was worth a half-crown and a quite considerable amount of trafficking went on. A reflection of this trade is discernible when our coloured patients, particularly, demand tablets with "M & B 760" embossed upon them before they are willing to accept them. I am not altogether convinced that tablets issued from our shore clinics are consumed by the registered patients only. I fear that on occasion "lady friends" are given them as a prophylactic. This in itself has the wider significance that, as the result of half-hearted treatment on the part of the patient and sporadic ingestion on the part of the "lady friend", a strain of gonococci impervious to chemotherapy by sulphonamides is in the making.

I am still exercised in mind about purulent non-specific urethritis, whether it follows a venereal exposure or occurs in the form of a post-gonorrhoeal complication. In pre-sulphonamide days we treated such cases with all the care required for a demonstrably gonococcal infection, and were unwilling to discharge as cured and non-infectious any case in which pus was found in the urethra and its adnexal glands. Today I am not convinced that, because these cases are refractory to sulphonamide and penicillin therapy, they should be abandoned before they are rendered non-purulent. In the section below dealing with actual results of treatment, it is shown that in 58 out of 100 consecutive cases treated with one or two full courses of sulphonamides there remained a more or less pronounced non-specific purulent urethritis.

*Syphilis*.—With the exception of clinics in Great Britain and in Australia, wide divergencies still exist in treatment and almost all clinics fail to complete the transfer book (V 15 or V 44) by entering in the appropriate space the stage of the disease at the time of the first attendance and clinical notes. Serological and bacteriological data are generally reported fully, but the mere statement that the blood Wassermann was positive at the first clinic leaves the succeeding clinics without precise and very necessary information.

If the diagnosis is made at a port of call in the course of a voyage, it would appear that all that can be done is to give the patient one or two injections in order to effect a symptomatic cure and to allow him to continue the voyage. In the absence of a ship's surgeon this may be a dangerous procedure both for the patient and his shipmates. We are in full agreement with our American friends that this type of intermittent treatment is disastrous.

In Canada and the United States of America there is still a tendency to retain the alternating arsenical and heavy metal treatment for seamen, whose treatment cannot possibly be continuous in the absence of a ship's surgeon. This is undoubtedly a grave error, but it is refreshing to find that a partial change of heart with regard to the advisability of combining heavy metals with arsenicals (especially if mapharsen is the arsenical of choice) is occurring even in the case of non-migratory patients within the United States of America. The scheme suggested by Eagle and Hogan presents desirable features, since it depends for its success not so much upon regularity of injections as upon the administration of about 25 milligrams of mapharsen per kilogram of body weight, with concurrent bismuth, in approximately 8 weeks. This single course of treatment is said to achieve cure in 85 per cent of early cases. Perhaps a shorter course given 3-6 months later would increase the rate of cure to 100 per cent, and syphilologists in the United States of America might approach more closely to our ideas of intensive courses of arsenicals and heavy metals given at intervals. Dr. F. K. Wilson, Netherlands Shipping Medical

TABLE 4—COMPARISON OF RESULTS OF TREATMENT OF SYPHILIS

Type of Syphilis •	Treatment	Number of cases	Number of courses	Number of cases followed up	Successes	Failures at 6 months	Successes : Wassermann reaction negative at								Cerebrospinal fluid		Relapses			
							3 months	6 months	9 months	12 months	15 months	18 months	24 months	Normal	Abnormal	Under 6 months Clin.	6 months Serol.	Over 6 months Clin.	6 months Serol.	
S 1—	Eagle	16 21	16 42	16 21	16 21	Nil Nil	— —	2 —	5 4	4 3	2 3	3 3	— 8	8 7	Nil Nil	Nil Nil	Nil Nil	Nil Nil	Nil Nil	
	Ross	18 3	54 12	18 3	18 3	Nil Nil	— —	— —	2 —	3 —	1 —	1 —	11 3	6 2	Nil Nil	Nil Nil	Nil Nil	Nil Nil	Nil Nil	
S 1+	Eagle	15 17	15 34	15 17	15 17	Nil Nil	3 —	4 6	3 5	4 3	1 —	— 3	— —	3 6	Nil Nil	Nil Nil	Nil Nil	Nil Nil	Nil Nil	
	Ross	21 7	63 28	21 7	21 7	Nil Nil	— —	— —	3 —	5 —	4 —	4 —	5 7	14 4	Nil Nil	Nil Nil	Nil Nil	Nil Nil	Nil Nil	
S 2	Eagle	2 8	2 16	2 8	2 8	Nil Nil	2 —	— 4	— 2	— 2	— —	— —	— —	— 3	Nil Nil	Nil Nil	Nil Nil	Nil Nil	Nil Nil	
	Ross	17 3	51 12	17 3	15 3	Nil* Nil	— —	— —	5 —	— —	3 1	4 —	3 2	7 3	Nil Nil	Nil Nil	Nil Nil	Nil Nil	2 Nil	
Total ...		148	345	148	146	Nil													2	

S 1— = sero-negative primary syphilis  
S 1+ = sero-positive primary syphilis  
S 2 = secondary syphilis

Eagle = Eagle and Hogan's scheme. (See page 132)  
Ross = Ross's method  
\*Two cases were not seen until more than 6 months after treatment; see column 20 and comment on page 132

Clin. = clinically estimated  
Serol. = serologically estimated

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Officer in Liverpool, has adopted the Eagle and Hogan course, but follows it at an interval of 6 months with a shorter and less intensive course. His results are tabulated below. (See Table 4.)

Since the opening of the Mediterranean Sea, fewer ships use Cape Town. The method in vogue there was the multiple injection daily of mapharside ( $0.06 \text{ gramme} \times 4$ ) for 5 days, with a suggestion that a course of bismuth should follow at once. All cases that came to Liverpool were most satisfactory but the number seen was small.

It cannot be said that at sea every ship's surgeon carries out the recommendations. Some certainly do, but others give injections at irregular intervals and use Acetylarsan (diethylamine oxyacetylaminophenylarsonate) for intramuscular arsenical therapy. The day of arrival in any port and the day of sailing seem to present difficulties, and at sea "alerts" against attacks by submarines and aircraft disturb normal routine duties. In spite of this, cases of clinical relapse are not common although fixed positive Wassermann cases are often encountered. Provided that the patient is willing to stay ashore for 6 weeks, we give the recommended course and include 6 pyrexial treatments in the first 3 weeks. The pyrexial treatment consists in giving graduated doses of Pyrifer (a colon bacillus vaccine) intravenously along with the arsenical injection. In almost all cases the fixed positive Wassermann reverts to negative within 3 months from the end of treatment.

### Comparative studies of arsenical compounds in treating syphilis

At the time of the 1942 conference, a large scale clinical experiment was in being in the Liverpool clinics, of which the Seamen's Dispensary is one, in order to determine the effects of the substitution of mapharside for neoarsphenamine in the standard course. Judging from the spirochaeticidal properties of the two preparations, it was considered that  $0.06 \text{ gramme}$  of mapharside was the equivalent of  $0.45 \text{ gramme}$  of neoarsphenamine, and that comparison between a total dosage of  $4.5 \text{ grammes}$  of neoarsphenamine and bismuth and  $0.6 \text{ gramme}$  of mapharside and bismuth should be made. As mapharside was proving to be relatively non-toxic, the dosage hitherto given of  $0.04 \text{ gramme}$  and  $0.06 \text{ gramme}$  each week was increased to  $0.06 \text{ gramme}$  twice weekly. Ten injections of  $0.06 \text{ gramme}$  of mapharside given twice weekly yielded a total dosage of  $0.6 \text{ gramme}$  in 32 days. This dosage was continued until August 1943. For the year following, arsphenamine diglucoside (in the form of Stabilarsan) became the arsenical of choice, chiefly because adequate and continuous supplies were readily available. In the cases already treated at another centre, the preparation previously employed, mapharside or neoarsphenamine, was continued except where untoward reactions had followed, for example, sickness after mapharside treatment whereas substitution of neoarsphenamine caused no immediate ill effects. The bismuth preparation used throughout was Bisoxyl (bismuth oxychloride, 10 per cent suspension in aqueous solution of chlorbutol, equivalent to bismuth metal  $0.08 \text{ gramme}$  per cubic centimetre); therefore, the effectiveness of mapharside can be compared with that of Stabilarsan as well as their relative toxic properties.

The results of treatment in 248 cases of early syphilis treated with full courses of mapharside and bismuth, and in 246 cases treated with Stabilarsan and bismuth, are shown in Table 3. It has been impossible to follow up all the cases, but it would appear that a substantial number of those who complete one course return for testing, and that a smaller number remain to complete a second and third course of treatment. The figures are compiled from those patients who were treated during the period from November 1942 to November 1944, and include all patients who conformed to the standards defined below. Some had received a course of treatment before November 1942, but returned during 1943-1944 to complete further courses of treatment. In cases in which this occurred, the whole history has been described for toxicity and other symptoms. No case has been entered twice as far as blood Wassermann tests are concerned; that is to say, a patient mentioned as having a negative Wassermann at the end of the course has not been tested subsequently, but has disappeared from the records. Similarly, a

case which has suffered serological relapse and later become negative under treatment is shown only as a failure at the time of serological relapse, and further serological history is discounted.

### Standard courses of treatment for syphilis

A regular first course consists of a total of from 4.5 grammes to 5.4 grammes of neoarsphenamine or of arsphenamine diglucoside (as Stabilarisan) or of from 0.6 gramme to 0.72 gramme of mapharside (*m*-amino-*p*-hydroxyphenylarsine hydrochloride) for cases in which intervals between injections do not exceed 4 days together with a total concurrent bismuth dosage of 1.5 grammes to 2.0 grammes. Duration of the course is 39 days or less.

An irregular first course consists of a similar total dosage, but in it the intervals between arsenical injections during the course in some instances exceed 4 days. The course, therefore, exceeds 39 days but does not exceed 2 calendar months.

Subsequent courses consist of a total of 4 grammes of neoarsphenamine or of Stabilarisan, or of 0.6 gramme of mapharside, together with about 1.5 grammes of bismuth. The distinction between regular and irregular treatment is governed by the four-day interval limit.

In Table 3 the behaviour of cases treated with mapharside and bismuth, as against those treated with Stabilarisan and bismuth, is shown under 3 headings, namely, sero-negative primary syphilis (S 1—), sero-positive primary syphilis (S 1+) and secondary syphilis (S 2); each of these 3 headings is duplicated according to regularity and irregularity of the first course, as defined above. On occasion a patient who attended with the utmost regularity during the first course was unable to keep to his dates during the second or the third course, and thus column 4 shows by the symbol "R" the number of perfectly regular courses attained by members of each group, whereas "I" represents irregular courses. It will be observed that those who attended quite regularly for the first course continued to attend regularly in subsequent courses as a rule.

Column 6 (Successes) shows the number of cases in which the blood Wassermann remained negative (in sero-negative primary cases) or reverted to negative after the completion of one course of treatment. If at a later date the Wassermann became positive, this disqualified the case from inclusion in column 6. Column 7 (Failures) shows the number of cases which, on return some 3-6 months after the first course, showed either clinical relapse with a positive serology or a positive blood Wassermann without any clinical signs of syphilis (serological failure). They are differentiated in columns 16 and 17. Columns 18 and 19 show respectively clinical relapse, with positive serology except in case 42/3111 (see below), and serological relapse alone in cases which relapsed at a date considerably longer than 6 months after the end of the first course. They are not successes, but because they were either not seen at 6 months after treatment or were sero-negative at that date and relapsed later, cannot be accounted failures without further scrutiny. They are discussed further on.

### Results of treatment of syphilis

From a study of Table 3, it appears that, provided that neoarsphenamine and bismuth are given as directed, serological reversal from positive to negative is to be expected and the case will remain clinically and serologically negative for more than 6 months. One case only failed to respond, and I am doubtful about its exact diagnosis, since at the patient's first attendance he may have had an infectious relapse, rather than a sero-positive primary infection. In any case, his clinical response to treatment was unusual.

Case 43/2463.—Canadian donkeyman, aged 27 years.

Previous history: soft sore in 1941; coitus about 1.9.43.

About 5 weeks later, 2 lesions appeared within a few days of one another: (1) an indurated punctate ulcer on the external aspect of the dorsum of the prepuce; (2) a small ulcer on the right ventral aspect of the glans.



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13.10.43. *Spirochaeta pallida* found. Blood Wassermann strongly positive. Treatment with Stabilarisan and bismuth begun. On 4.11.43, after 8 injections of 0.45 gramme Stabilarisan and 0.16 gramme bismuth, an ulcer of about 1 centimetre in diameter appeared on the dorsal aspect of the glans. The course of 12 injections was completed on 19.11.43, but the ulcer did not heal until 6.12.43. Blood Wassermann strongly positive at end of course. On 22.3.44 the patient returned with no clinical signs, but the Wassermann was still strongly positive (corroborated). A second course of treatment was given, but patient has not reported since.

Regular treatment with mapharside and bismuth has in this series proved disappointing. Two sero-negative primary cases (muco-cutaneous type) relapsed in the first 6 months after the first course, one sero-positive case either did not respond or relapsed serologically. One case of secondary syphilis retained a positive Wassermann for 5 months and meningo-vascular syphilis developed, and another was a case of pseudo-tabes with negative blood Wassermann at 11 months after the first course. These last two cases are the only neurorecidive cases of treated early syphilis that I have seen at this centre in 20 years; their case histories follow.

*Case history 43/468.*—Male aged 27 years. Diagnosis: secondary syphilis.

25.2.43. Phimosis with multiple ulceration of free edge of prepuce; general lymphadenopathy; hypertrophic syphilide of frontal and nasal regions of face; right tonsil ulcerated. *Spirochaeta pallida* present in primary ulcers. Blood Wassermann strongly positive.

25.2.43 to 27.3.43. Regular treatment consisting of 10 × 0.06 gramme mapharside and 10 × 0.16 gramme bismuth. Blood Wassermann on last day of course strongly positive.

22.8.43. Admitted to David Lewis Northern Hospital under Dr. Cunningham, with a history of having wakened that morning to find himself paralysed down the right side. Power soon returned to the leg and partially to the rest of the right side. Blood Wassermann strongly positive.

Cerebrospinal fluid examination: Wassermann, positive in all dilutions; protein, 200 milligrams per cent; globulin, marked increase; cells, 320 per cubic millimetre, mostly lymphocytes; colloidal mastic, 455520.

6.9.43. Discharged from hospital improved, with diagnosis of early meningo-vascular syphilis. 8.9.43 to 19.10.43. Intensive treatment by 5.25 grammes Stabilarisan and 1.8 grammes bismuth. Referred back to hospital for observation. Defaulted.

*Case history 42/3111.*—Male aged 33 years. Diagnosis: secondary syphilis.

2.12.42. Oedema of prepuce; primary ulcer of froenum; discrete papular syphilide on trunk; mucous patch at left angle of mouth. *Spirochaeta pallida* present in primary ulcer. Blood Wassermann strongly positive.

24.12.42 to 21.1.43. Regular treatment consisting of 10 × 0.06 gramme mapharside and 10 × 0.16 gramme bismuth. Blood Wassermann on last day of course negative.

10.12.43. Returned after 11 months' interval, complaining that he felt unfit for work. Patient was pale and "weedy-looking" and out of condition. Neither knee nor ankle jerks were elicited; pupils normal; sensation to light, touch and pain diminished; appreciation of pain on pinching tendo Achillis not disturbed. Admitted to David Lewis Northern Hospital under Dr. Cunningham.

Blood Wassermann, negative. Cerebrospinal fluid examination: Wassermann, negative; protein, 250 milligrams per cent; globulin, increased; cells, 2 per cubic millimetre; Lange test, 1134222100.

Regular treatment with mapharside 10 × 0.06 gramme and 10 × 0.16 gramme bismuth was given in hospital, from which he was discharged on 28.1.44.

3.2.44 to 9.3.44. Potassium iodide was given by mouth, 5 grammes thrice daily.

9.3.44. Cerebrospinal fluid examination: Wassermann, negative throughout; protein, 60 milligrams per cent; globulin, slight increase; cells, 3 per cubic millimetre; Lange test, normal.

18.4.44. Blood Wassermann, negative. Ankle and knee jerks normal. Sensation normal. Treatment with intravenous sodium iodide (10 per cent solution) and bismuth intra-muscularly on 12 occasions.

16.1.45. Clinically normal. Blood Wassermann negative. Cerebrospinal fluid normal (protein 0.04 per cent).

Irregular treatment is productive of much relapse, both in cases treated with mapharside and in those treated with Stabilarisan, during the 6 months' rest period following the first course. Comparing successes with failures in the series, the order of merit is as under.

Regular Stabilarisan and bismuth:	70 successes	1 failure
Regular mapharside and bismuth:	120 successes	4 failures
Irregular mapharside and bismuth:	74 successes	6 failures
Irregular Stabilarisan and bismuth:	32 successes	6 failures

Of the 20 cases which relapsed after the 6 months' standard rest period, 16 had not received a second course of treatment and the remaining 4 had received an irregular second course. One was found to have relapsed 18 months after completing the second course, a second and third 12 months after, and the fourth case more than 6 months after completion. Three of these 4 cases had had an original regular course of mapharside and bismuth and one a regular course of Stabilarсан and bismuth. All had negative Wassermann reactions at the beginning of the second course, and were thus successes up to that point. They are, however, included in the group of failures because of the later serological relapse.

### Toxic sequelae in the treatment of syphilis

With regard to toxic sequelae of arsenical treatment in this series, there were 2 deaths. One after treatment with mapharside was due to arsenical encephalopathy, with a cerebrospinal fluid pathology reminiscent of dementia paralytica; the other, after Stabilarсан, was due to dermatitis. In the latter case delay in giving treatment was, I believe, largely responsible for the fatal outcome.

In all, 463 courses of mapharside and bismuth were given to 248 cases. There were 27 cases of jaundice, one case of arsenical encephalopathy, 8 cases of albuminuria sufficiently severe to modify or prohibit bismuth therapy, and only one case of dermatitis. There were 317 courses of Stabilarсан and bismuth, given to 246 cases. During these courses there were 27 cases of jaundice, 13 cases of dermatitis (4 being of the 9th-day erythema type) one non-fatal cerebral reaction and 8 cases of albuminuria of moderate severity. No other untoward reactions occurred.

*Case history 43/1251.* 26.5.43. A Chinese, aged 52 years; diagnosis, primary syphilis.

Patient reported with 2 ulcers, one on the sulcus penis, and the other on the frenum, rather dirty and indurated; inguinal lymphadenopathy was present; no other signs of syphilis. Blood Wassermann, negative; 6 dark-ground examinations failed to discover *S. pallida*. Sulphonamides given to help to clean ulcer.

8.6.43. Blood Wassermann, strongly positive. Mapharside 0.06 gramme given on 15th, 18th, 21st and 24th June. Bismuth given on 15th and 18th June, but not repeated on account of albuminuria.

26.6.43. Cerebrospinal fluid report: Blood Wassermann, positive in all dilutions; protein, 0.6 per cent; globulin, much increased; Lange test, 5555555532.

1.7.43. Patient died in hospital. Necropsy findings: arsenical encephalopathy.

*Case history 44/82.*—Englishman, aged 20 years. Diagnosis, secondary syphilis.

Three days after the administration of 10 irregular injections of 0.45 gramme of Stabilarсан and 0.12 gramme of bismuth, dermatitis developed and he was admitted to hospital. Immediate treatment for the dermatitis was not given as a new therapeutic substance was awaited. Eleven days after patient's admission stomatitis developed and he died on the 23rd day after admission.

In 2 cases, which had been treated previously with mapharside without incident, dermatitis developed after the first dose of 0.45 gramme of Stabilarсан, given after a 6 months' rest.

One patient, who had experienced convulsive seizures after treatment with Stabilarсан, was ultimately given therapeutic doses of mapharside without ill effect.

It has been noted that patients who had sickness, with or without colicky pains, some hours after the administration of mapharside, were able to take therapeutic doses of neoarsphenamine or of Stabilarсан without any upset.

### Results of more intensive treatment of syphilis

Dr. F. Knox Wilson, Medical Officer to the Netherlands Shipping and Trading Committee, has supplied me with comparative figures obtained from records of the more intensive method of treatment suggested by Eagle and Hogan, as well as from the method employed at the Seamen's Dispensary, Liverpool, 1940-42 (Ross). His report is as under.

"Generally speaking, the cases which have received 3 or 4 courses are those which have had courses of 12 injections according to the Ross system, whereas those which are shown as having had one or 2 courses are those which have received an initial long course of 1,400 to 1,600 milligrams of mapharside for their first course, and a second course 6 months later of 12 injections of mapharside. The 2 cases, showing serological relapse after 6 months, did not return until 8 and 11 months, respectively, after their first course of treatment.

## TREATMENT IN THE ALLIED MERCHANT NAVIES

With regard to our syringes, our system is as follows. As each syringe is used it is placed at once in Dettol, and allowed to soak in this until we have time to boil it. It is then boiled and after boiling is kept in spirit until required for further use. This, I think, accounts largely for the fact that we have had only two cases of jaundice in over 10,000 injections of mapharside given here. As a matter of interest, both these men who did become jaundiced had been in North Africa within two months of the appearance of the jaundice, in areas where infective jaundice was rife."

The results of the treatment are presented in Table 4.

*Toxic reactions.*—In this series 148 cases received 345 courses of mapharside and bismuth. Two cases of jaundice and 3 cases of transient albuminuria were observed but no other toxic sequelae whatsoever.

### Treatment of gonorrhoea

In the treatment of gonorrhoea, 6 grammes of sulphathiazole daily for 5 days were prescribed, together with lavage with oxycyanide of mercury solution (1 in 8,000) at 105°F., given daily to those patients whose second glass of urine showed no suspended pus. In the cases in which clinical and bacteriological evidence was satisfactory after the first course, tests of cure were employed. In the cases which showed evidence of continued urethritis—pus shreds or suspended pus in the urine—lavage and other methods of pre-sulphonamide days were employed, and a week later a second course of sulphonamide (either sulphathiazole or sulphadiazine, 6 grammes daily for 5 days) was given. Thereafter, if urethral discharge containing gonococci persisted, penicillin was administered in 20,000-unit doses at intervals of 3 hours on 5 occasions.

The following figures illustrate the results of such treatment in 100 consecutive cases of fresh untreated gonorrhoea with no history of previous attacks.

<i>After one course of M &amp; B 760 (sulphathiazole) 30 grammes in 5 days</i>					
Apparent cure	...	...	...	...	33
Urine clear with pus shreds	...	...	...	...	24
Urine hazy with suspended pus	...	...	...	...	21
<i>After two courses of M &amp; B 760 (or of sulphadiazine in second course)</i>					
Apparent cure	...	...	...	...	4
Urine clear with pus shreds	...	...	...	...	4
Urine hazy with suspended pus	...	...	...	...	9
Failures requiring penicillin	...	...	...	...	5
					<hr/> 100

One case required a second treatment with 100,000 units of penicillin.

In several thousand cases, there has been no serious complication of sulphonamide treatment which has required more than the withdrawal of the drug to cure it.

### Social conditions

Prior to World War II, Liverpool was a "liner" port. This term does not refer to large vessels designed mainly for passenger service, but to the principle of regular sailings of large vessels carrying freight or passengers or both. To the men serving in these ships, Liverpool was home and in this city they set up house and became citizens. The unmarried men returned to the homes of their parents on Merseyside or in North Wales, and for the small number of homeless men a few institutes, generally with a religious background, did excellent service in providing recreation as well as bread-and-butter and bed. They refitted shipwrecked mariners, helped in business matters and generally served as "guide, philosopher and friend" to men of all nations and creeds.

The outbreak of war and the change to the convoy system altered the character of the port. At irregular but frequent intervals, ships of all types docked and accommodation for seamen ashore became short. As the war progressed conditions became worse. Norway, Denmark, Holland, Belgium and France became enemy-occupied, and the shipping of these countries was diverted to British ports. Then the conditions in our eastern, southern and south-western ports deteriorated, and Liverpool and Glasgow had to deal with all this accumulated shipping. On the top of this came the "Blitz," the closing of the Mediterranean Sea, the invasion

of Yugoslavia and Greece : more shipping, more men ashore, torpedoed and shipwrecked crews landed, and fewer houses available to house them. Then the Pacific war began, and Indian and Chinese seamen, cut off from home, thronged the port. The floating population of Chinese, once in the neighbourhood of 300, multiplied six times. Then from the deserted ports came the women of easy virtue to swell the not inconsiderable host already stationed in Liverpool. So it came about that the surest way for a seaman to obtain a bed was to share it with one of these women. Something had to be done, and done quickly, so the various Allied Governments established hostels in partially blasted mansions where at least a bed could be provided. The Lord Mayor of Liverpool's War Service Fund and the Young Men's Christian Association and other bodies provided further accommodation, and this hastily improvised scheme relieved the exacerbated conditions and allowed long-term planning to be considered.

First the existing hostels were visited by a seamen's welfare officer, and suggestions were made for providing better ablution and lavatory accommodation, re-painting, the provision of lockers for the men's personal belongings, and other improvements. A recreation room, in addition to a dining room, was considered as a necessity. Priority for materials and labour for these improvements were secured. Provision of alcoholic beverages on the premises was considered to be necessary, since the public house was in many cases peopled by women of undesirable type.

A hostel for officers and their wives was also opened, and has proved to be a great success.

Various clubs opened and of these the Ocean Club is outstanding. It is sponsored by the Liverpool Seamen's Welfare Council, consisting of representatives of the ship-owners, of the National Union of Seamen, of officers' organizations and of the Ministry of Labour and National Service. It is open 24 hours a day, but its licensing hours are the normal hours for the city. One of the objects of the club has been to provide a place for men who, after an entertainment or dance which finished at 10.30 p.m., had no wish to return to their ship straightway. It was known that prostitutes awaited the break-up of dances and entertainments arranged for the men, with a view to business. This club provides amenities for men who would otherwise be at a loose end after 10.30 p.m. As evidence of the value of the club, more meals are eaten there between the hours of 10.30 p.m. and 12.30 a.m. than during any other two hours of the twenty-four. No woman is allowed on the premises after 11 p.m., and no member may introduce a woman into the club after 9 p.m. Taxis are procurable to take men to their ships at all hours. The club has made a profit from its inception, and all profits go to "Summerlands", near Kendal, a well appointed rest and rehabilitation home for merchant seamen, established by the Liverpool Seamen's Welfare Council.

By the enactment of certain by-laws, under the Merchant Shipping Act of 1894, which came into force on the 10th April 1944, Liverpool Corporation has ended the bad conditions which existed in boarding houses, more especially those for Asiatic seamen. Ship-owners are responsible for the maintenance of these men living ashore, and for this purpose expend the sum of 4s. 6d. per man per day. In pre-war days, little more than a common dormitory, with no amenities worth mentioning, was provided by private individuals engaging in this specialized business. Under these by-laws, control is exercised, and proper standards of window area to floor space, lavatory and ablution accommodation, public rooms for dining and for recreation, and adequate ventilation and bed spacing in the dormitories are enforced. This is progress of great significance and a happy augury for the future.

My thanks are due to Drs. Leslie Cunningham, F. Glyn-Hughes and R. D. Hotston for their reports on in-patient cases ; to Mr. Paul of the Ministry of Labour and National Service for his invaluable help on the subject of social conditions ; and to Dr. W. M. Frazer, Medical Officer of Health, City and Port of Liverpool, and to the Chairman of the Hospitals Committee, for permission to publish this article.

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